TRANSACTIONS OF SOCIETIES.

Art. XIV.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1869. *October 6. Case in which the Cæsarean Operation was practised. Death of Mother on seventh day from (supposed) Intestinal Obstruction; Child living.*—Dr. Walter F. Atlee read the following case:—

September 17, I was called by Dr. W. H. Hooper to see Mrs. O'H., for the purpose of practising the Cæsarean operation. Twice before she had been delivered of a child at term by embryotomy. When I reached the house, in company with Dr. Hooper, Dr. Boker, and Dr. Fassitt, the patient had been in labour for several hours. She was thirty-one years of age, and apparently a very healthy woman. The child was alive and at full term. The mouth of the womb was open to the size of a silver dollar. The membranes were intact. As nearly as could be ascertained, the antero-posterior diameter was not over two inches.

The patient consented without hesitation to the Cæsarean operation when it was proposed to her. The bowels had been freely opened by oil in the morning. The bladder was emptied by the catheter. Chloroform was administered. Probably two drachms were used before she was sufficiently insensible to pain. The incision was made through the linea alba, as nearly as could be in the median line of the body, and about six inches in length. The womb was divided by incisions, made quickly, but not too profoundly, to avoid opening the membranes containing the child. The placenta was found directly under the line of incision, and was detached and dragged out, the membranes being, of course, opened in so doing. The child was delivered by the breech. The delivery was accomplished with difficulty, a part of the head being firmly held in the superior opening of the pelvis. Some blood was lost during the incising of the womb, but, certainly, not more than is lost in ordinary labour. After the contraction of the womb there was some difficulty, owing to the small number of assistants, in keeping the intestines inside the abdominal cavity.

The wound in the womb was simply well cleaned; that in the walls of the abdomen was sewed together with gilded silver wire, a narrow compress was placed over it, and a bandage applied around the abdomen. Until the 21st, or for four days, only barley water was given as nourishment. Opium was given regularly. The urine was drawn off morning and evening. The lochial discharge was as usual, as well as the secretion of the mammary glands. On the 21st, being four days after the operation, the bandage was removed, and the wound was found to have healed by first intention. There was no tenderness any-where, except in the left iliac region, where the patient said it felt sore, and shrunk from having it pressed. There was, however, on this day considerable tympanitic distension. The pressure of the bandage was pleasant, and the woman asked to have it applied tightly. There was no chill at any time, the lochial discharges were as usual in quantity and quality, and the mammary glands performed their functions.

The patient died on the 23d, at 9 o'clock P. M., and, probably, from enormous tympanitic distension in the abdominal cavity. There was no passage from the intestines after the operation. No post-mortem examination could be obtained.

The physician who had attended this woman after her second confinement, informs me that a very large pelvic abscess formed at that time and opened into the rectum. The obstruction in the intestines, from which she died, at least in my own opinion, may have been caused by incarceration under some fibrous band, the result of pelvic abscess; or may have been the result of intussusception, or of knotting of the small intestine. There was more handling of the intestines than there would have been with a greater number of assistants at the time of the operation, but no more could have been obtained without a loss of time that might have been exceedingly disadvantageous.

December 15. *Effects of Chloral, Chloroform, and Ether hypodermically employed.*—Dr. S. WEIR MITCHELL exhibited three pigeons under the influence of chloral, chloroform, and ether, respectively. One bird had received a dose of chloral, gr. iv, by hypodermic injection, five hours previously, at 3 P. M., under the influence of which it still remained in a state of profound stupor or sleep. Another bird had received two hypodermic injections of chloroform, gtt. x, at 3 P. M., and gtt. x, at 6 P. M.; and a third pigeon had received two hypodermic injections of ether, gtt. xxv to xxx, at 3 P. M., and again at 6 P. M. The last two pigeons were in deep sleep, but could be aroused by shaking. Dr. Mitchell had been led to employ chloroform from the supposition that the effects of chloral might be due to the liberation of chloroform in the system. He had subsequently found, however, that Dr. B. W. Richardson, of London, had done the same thing; and indeed that several British journalists were acquainted with the effects of chloroform when hypodermically injected. Dr. M. had found, however, that the dose of chloroform required to produce sleep was greater than the amount of chloral capable of producing similar effects could contain. He suggested that the formate of soda, the other product of the decomposition of chloral, might produce some part of the effect. It was to be remembered that some of the French observers had denied that chloral does undergo decomposition in the system. The effects of ether and chloroform also appear to pass off more rapidly than those of chloral. To show the remarkable difference in the susceptibility of pigeons to different hypnotics, Dr. M. had administered extr. opii gr. l. (fifty) to one of these birds during the same day, without producing the least narcotic effect.

Dr. H. C. WOOD, JR., remarked that probably the difference in the action of chloroform when given in the three different ways—by inhalation, by the mouth, and hypodermically—might be accounted for by the differences in the rapidity and degree of absorption. When ordinary doses were given by the mouth, he thought it was resolved into vapour and merely produced a local effect; although it is true that a dose of f℥j of chloroform will narcotize. When it is given by the lungs, narcosis is rapidly produced, and it is doubtless in this way that a paralyzing influence on the heart is most positively exerted. When it is used hypodermically, it is probable that intermediate effects are produced. Dr. W. was not inclined to regard it as likely that chloral is decomposed, since, after its administration, the breath is distinctly tainted with the odour of the drug. He also mentioned that he had succeeded in inducing profound anæsthesia in a cat by the vapour of cold alcohol.

Case of Bony Union after Intra-Capsular Fracture of Cervix Femoris.—Dr. JOHN H. PACKARD presented, through the courtesy of Dr. J. M. Adler, a specimen of united intracapsular fracture of the neck of the femur.

The specimen consisted of the upper part of the right femur, in which bony union of an intracapsular fracture had apparently taken place. A vertical section had been made through the head, neck, and trochanters. The history of the case was as follows: The patient, an old lady, æt. about 65, was partially hemiplegic, and suffered from paralysis of the neck of the bladder. By a fall from her bed, she sustained at the same time a fracture of the cervix femoris, and another of the lower end of the right radius. Her foot was inverted, the leg shortened, and there was pain in the groin and hip-joint, and crepitus. The femoral fracture was diagnosed as intracapsular, and treated with a straight splint, extension and counter-extension being made by means of adhesive plaster. The apparatus was removed in seven weeks.

Five months after the receipt of the injury the patient died. The capsular ligament was found untorn and its interior healthy.

Dr. HEWSON called attention to the resemblance of this specimen to one in the possession of Sir R. Adams, and figured in his work.

On motion, the specimen was referred to a committee consisting of Drs. Packard, Hewson, and John Ashhurst, Jr., which presented the following report January 19, 1870:—

"After careful study of the specimen, we are convinced that it is one of genuine bony union of an impacted intracapsular fracture of the cervix femoris."

1870. *January* 19. *Suspension of Intestinal Secretion and Failure to produce Purgation after Section of the Par Vagum.*—Dr. H. C. WOOD, JR., said:—

I believe the Fellows of the College are generally aware that during the past summer I was engaged in an elaborate investigation into the action of certain alkaloids upon the heart and nervous system. In the course of this inquiry, after cutting the pneumogastric nerves and administering drugs, I was surprised to find that veratria and the allied alkaloid veratroidia failed to purge or vomit. I was at first disposed to assign this to idiosyncrasies on the part of the animals under observation; but upon investigation of the subject it became evident that this was not the cause, for when my experiments had reached nearly thirty, combinations of the strongest cathartics had still uniformly failed to produce purgation. Arsenic, one of the most certain purgatives in the lower animals, failed in a number of cases. In order to render the experiments satisfactory, I, in some instances, purged the animal with calomel, and on the following day administered double the dose, adding one or two drops of croton oil and ten grains of extract of jalap; but the bowels remained unmoved. The intestine was found pale, almost bloodless, with sometimes a little reddening of the mucous membrane. I was the more astonished at the failure, because the pneumogastrics are stated, in our works upon anatomy and physiology, to have no direct relation to the bowels. I have found, however, that Mr. Kollman, in a prize essay published in the *Zeitschrift für Wissenschaftliche Zoologie*, Band x., states that he has distinctly traced their distribution to the whole length of the intestine; and I have an impression that one or two English authorities have made a similar avowal. In looking up the literature of the subject I learned that Sir Benjamin Brodie, in a paper published in 1814, mentions the failure of purgatives under circumstances similar to those which I have described. He employed arsenic, but his observations were only four in number. Dr. Reid, however, repeating Brodie's experiments, claims that he has found arsenic to increase the intestinal secretion as much after section of the par vagum as in the uninjured animal. I must, however, regard Dr. Reid's observations as faulty. Only in one case does he mention the occurrence of purgation, while in the others he found merely mucus in the bowels, nothing being known as to how much was there before, and how much was secreted after the administration of the drug. I almost doubted the correctness of the statement that purging was produced at all, until my 25th experiment, when the bowels were violently operated on. Slight purging occurred in the 26th case also. Thus my observations show that in most instances it is impossible to produce purgation after section of the pneumogastric nerves, but that in a few cases there is a deviation from this rule. These are the facts; what explanation can be offered?

Bernard and Schiff agree that if the pneumogastrics are cut in the neck, secretion is arrested in the stomach; if cut below the diaphragm secretion in the stomach is not affected. It is very difficult to divide the nerves in the cat (the animal on which I have operated) satisfactorily at this latter point. I have endeavoured to do it, and have heretofore failed; but am willing to accept the results of these authorities. Schiff explains the arrest of the gastric secretion by the disturbance of the action of the heart and lungs. Now it is evident that arrest of secretion in the stomach must be identical in character with arrest of secretion in the bowels, and it is difficult to see exactly how this can depend on disturbances of the thoracic organs. I have therefore endeavoured to form some other explanation of the facts, but am not, as yet, willing to commit myself to any theory. One that immediately suggests itself is, that the par vagum is the vasomotor antagonist of the abdominal sympathetic, since it has been found by Schiff, Bernard, and others, that when the splanchnic nerves are cut the vessels of the intestine are dilated, and that when they are galvanized or otherwise excited, the capillaries contract. Bernard has also proved that section of the pneumogastric in the neck causes the gastric mucous membrane to become pale.

Dr. WOOD also said: After section of the pneumogastrics in the neck it is practically impossible for the animal to swallow. I therefore, in some instances, administered the purgative from one to three hours before cutting the nerve. Sometimes catharsis had already commenced at the time of the operation; in such cases it then ceased. If it had not previously occurred it did not afterward take place. Arsenic and veratria were generally administered hypodermically.

Dr. WM. PEPPER said: The very interesting communication made by Dr. Wood appears not only to possess much value in regard to anatomy and physiology, but to be of even greater importance in its bearing upon pathological states of the sympathetic system in man. By the amount of light thrown upon the functions of the abdominal sympathetic and by the greater degree of accuracy obtained in the investigations of late years, we are enabled to refer an increased number of diseased conditions to disorders of this nerve. One of the most positive influences exerted by the nervous ganglia of the abdomen appears to be upon the secretion of the intestinal mucous membrane. Thus the evidence is gradually accumulating in relation to the dependence of cholera upon paralysis of these nervous centres from over irritation; and there are other analogous conditions which are unquestionably due to a similar morbid action. The cases of section of the splanchnic nerves in lower animals, attended with profuse serous purging, show the result of entirely withdrawing the influence of the sympathetic nerve, and tend to confirm the theory advanced by Dr. Wood to explain the phenomena observed in his experiments. There is another symptom of diseased action of the sympathetic which depends upon the connection between abnormal states of the abdominal ganglia and the condition of the cutaneous capillaries. The marked effects which injury of the abdominal sympathetic produces, the pallor, the reduction of temperature, the diminished pulse and arrest of cutaneous circulation, are probably all evidences of the vaso-motor power possessed by this portion of the nervous system. I have recently met with two cases in which, from pressure upon, or direct lesion of, the sympathetic ganglia in the abdomen, the function of this nerve was apparently disordered; in both cases profuse sweating occurred. One patient was under my observation for eighteen months, suffering with an abdominal tumour of either aneurismal or cancerous nature. One of the symptoms most constantly complained of was profuse sweating. The skin was drenched in perspiration, so that, although he was a cleanly person, an unpleasant exhalation could not be prevented. It was a remarkable fact that by altering the patient's position, so as to alter the pressure, the sweating could be confined to one side; obstinate constipation was conjoined with this condition. As no post-mortem examination was permitted it was impossible to ascertain with accuracy the portions of nervous structure which were affected. In the last few days (through the courtesy of Dr. A. H. Smith, who called me in consultation) I have had the opportunity of studying a second case in which this combination of obstinate constipation and profuse sweating was present. In this latter instance the disease consisted of encephaloid cancer of the abdominal lymphatic glands. At a point behind the pancreas, and corresponding to the seat of the solar plexus of the sympathetic, the diseased glands formed a large flattened mass, closely adherent to the vertebral column posteriorly, and to the pancreas anteriorly. Although it was impossible, owing to the circumstances of the autopsy, to make a careful dissection of the nervous ganglia and branches, there can be no doubt that they were involved in, or pressed upon by the cancerous mass. These two cases were brought to my mind by the remarks of Dr. Wood, and as both of them presented unusually profuse sweating, with marked dryness of the mucous membrane of the intestine, I thought it might be interesting to speak of them, although informally, at this time. I propose, however, to publish the cases *in extenso*, with remarks, at an early day.

Dr. H. C. WOOD, JR. I omitted to state my observations in regard to vomiting. Schiff says that after section of the pneumogastrics, vomiting can occur so far as the movements are concerned. He injected peculiar food which could be certainly recognized again, through the œsophagus into the stomach; and after repeated attempts it was thrown up. He also states that he had vomited dogs with tartar emetic after division of the nerves near the cardia.

I have tried arsenic and veratria. They certainly always failed when the pneumogastrics were cut in the neck.

Pyæmia simulating Rheumatism.—Dr. JAMES H. HUTCHINSON read the following report of the case:—

The case which I am about to report to the College, while it is by no means regarded as an isolated one, presents so many points of interest and illustrates one of the rarer forms which pyæmia may assume, that it is believed it will prove of interest to the Fellows.

The patient, John G., an Irishman, aged thirty-three years, was admitted into the lower surgical ward of the Pennsylvania Hospital March 25, 1869, in consequence of a swelling of the knee, which was represented as the consequence of having fallen upon a rusty nail, in this way a flesh wound of the inner part of the left thigh, just above the patella, being inflicted. The wound seems to have been slight, and was already healed at the time of his admission. In spite of the swelling of the joint, Dr. Hewson, the attending surgeon, saw no reason to believe that the nail had entered it. On the 28th of March the patient had a decided and well-marked chill, followed by profuse sweating. A few days afterwards it was noticed, for the first time, that several of the large and many of the small joints were swollen, red, and painful, particularly the left knee—the original seat of the injury—both wrists, the right shoulder, and the joints of the fingers of both hands. A few days subsequently the ankle-joints became involved, but not to so marked a degree as the joints already alluded to. It is said that a second chill did not occur, but it was observed that the patient sweated freely, especially in the afternoon. He was transferred, April 5, to the medical ward as a case of acute articular rheumatism. When admitted into my ward, the knee, the shoulder, the wrist, and finger-joints were still swollen and red, and although fully recognizing that the disease with which I had to do was not acute articular rheumatism, as it is rare in that disease to have so many articulations involved at one time, and very infrequent to have the smaller joints affected, I was inclined to believe that the case was one of what is generally known as rheumatic gout, or, as it has been recently called by Dr. Garrod, rheumatoid arthritis; and it was not until I had carefully studied the case, for the purposes of a clinical lecture, that I discovered its real nature. The following are the symptoms observed at that time: Great swelling of the left knee, evidently dependent upon effusion into the joint; redness not so intense as is usual in rheumatism; swelling, and a painful condition of several of the other joints; great frequency and feebleness of the pulse; anxious and hurried respiration; a moderate increase of the temperature; excessive prostration; profuse perspiration, which had a marked tendency to recur at about 4 P. M. every day, and had not the peculiar acid smell so characteristic of rheumatism; a hay-like or sweetish odour of the breath, and a light straw-yellow tint of the skin. The patient complained of great pain when moved, and even at this stage raising him in bed occasioned so much discomfort that auscultation of the back of his chest was performed with difficulty. Its anterior surface was frequently examined, and no sign of disease of the lungs could at this time be discovered. The præcordial region was, of course, included in this examination, and no physical sign of inflammation of the pericardium or endocardium, or other disease of the heart, was at this or any subsequent period of the disease detected.

The following indicates the state of his pulse, respiration, and temperature from April 5 to April 10, inclusive :—

	Pulse.	Respiration.	Temperature.
April 5, P. M.	88	32	$100\frac{2}{5}$ F.
" 6, A. M.	110	38	102
" 6, P. M.	106	42	100
" 7, A. M.		30	$99\frac{1}{2}$
" 7, P. M.		28	99
" 8, P. M.		40	101
" 9, A. M.		28	100
" 9, P. M.	118	38	102
" 10, P. M.	Running.	52	$102\frac{1}{2}$

On April 10 the following note was made: Patient extremely ill, all the symptoms having assumed during the past few days an extremely typhoid character; is delirious at night, and during the day lies flat upon his back, with his eyes open, muttering to himself in an incoherent manner. Although he is with difficulty roused to answer questions, his answers are intelligent and intelligible. There is subsultus tendinum to such an extent as to interfere materially with a correct appreciation of the frequency of the pulse. There are no signs or symptoms of cardiac complication; nor is there material alteration in the character of the renal secretion, but it, as well as the feces, is frequently passed involuntarily. The skin is now of a decidedly greenish hue. Pain and swelling of the joints still continue, and the pain is so great when a physical examination of the posterior surface of the chest is attempted, that it can only be made in a very unsatisfactory manner. The only physical signs of disease which can be detected are slight dulness on both sides, posteriorly, together with coarse, crepitant rales diffused throughout the lungs. The dulness was not, however, sufficient to induce the belief that there was hepatization, or other consolidation of the lungs, and it was attributed to congestion.

State of the pulse, respiration, and temperature from April 12 to April 17, inclusive :—

	Pulse.	Respiration.	Temperature.
April 12, P. M.		46	101 F.
" 13, P. M.		38	$101\frac{3}{5}$
" 14, A. M.		50	100
" 15, A. M.	108	36	100
" 15, P. M.	110	36	$100\frac{1}{2}$
" 16, P. M.	112	36	$101\frac{1}{2}$
" 17, P. M.	112	34	$101\frac{1}{2}$

April 16. In consequence of the profuse sweating, there is, all over the surface of the patient's body, a copious eruption of sudamina; many of the minute vesicles have developed around themselves red areolæ, which are somewhat elevated above the surrounding skin, and in many cases the vesicle has become a pustule. This eruption in some places bears a slight resemblance to the rose-coloured spots of typhoid fever, but is readily distinguished from these by a close examination, which generally enables the observer to detect the vesicle, or pustule, seated at the summit of each papule. That there is some resemblance is shown by the fact that two of the physicians who have seen the case are inclined to think it one of typhoid fever complicated with rheumatism.

On the 17th of April a large abscess was discovered on the inner side of the left knee, near the seat of the original injury, producing a swelling and deformity of the part very different from that which was noticed when the patient first entered the ward. On the day following, the redness over the abscess had increased, and, with the consent of Dr. Hewson, the case was transferred to the surgical ward, where the abscess, which was clearly a secondary one, was freely laid open. Recovery ultimately took place, but the convalescence was unusually protracted, and the man for a long time bore in his appearance the traces of the severe constitutional disease to which he had, on more than one occasion, nearly succumbed. He was finally discharged from the hospital on July 23, after a stay of 119 days. And of his subsequent history little is known, except that on one occasion he was seen by Dr. Charles T. Hunter, one of the residents of the hospital, who tells me that there was impaired function of the left knee-joint, but apparently no disorganization of any of its important structures.

It is scarcely necessary to add that as soon as the real nature of the disease was recognized, the treatment consisted in stimulants, tonics, and beef-tea—tincture of the chloride of iron being given in doses of twenty drops every two or three hours.

To those among the Fellows of the College who think that pyæmia is an invariably fatal disease, the circumstance of this man's recovery will form an insurmountable objection to the acceptance of the diagnosis of pyæmia affecting principally the joints; but reference to several papers on the subject has convinced me that a recovery from this disease is by no means impossible. Thus, Bristowe, in his article on Pyæmia, in Reynolds's *System of Medicine*, says a certain proportion of cases recover; and Savory, quoted by Braidwood, says: "In acute and well-marked pyæmia one can hardly venture to admit a ray of hope. On the other hand, as a general rule, the longer the patient can struggle against the mischief, the more chance is there of his being ultimately rescued from the perils through which he has to pass."

I find also, by reference to the above and other authorities, that the affection of the joints is perhaps not so uncommon a manifestation of the disease as many of us might be inclined to suppose. Bristowe (Reynolds's *System of Medicine*, vol. i. p. 218), in the article above alluded to, says that it frequently happens that pain and swelling attack the joints, small as well as large, and other superficial parts, and subside without leading to further mischief; and in another place speaks of the liability to mistake this disease for acute articular rheumatism. Braidwood, in his monograph on this subject, reports cases presenting rheumatic symptoms, and in addition to expressing his own conviction on the subject, quotes Paget, who says: "The nearest affinities of chronic pyæmia are with rheumatism through gonorrhœal or urethral rheumatism." A similar opinion is expressed by Wilks, in his article in *Guy's Hospital Reports*, Series III., vol. vii. p. 133. He not only holds that the joints may be secondarily involved and disorganized, but says: "As regards the joints, it will be noticed, on the perusal of the cases, that in those that were acute, and the course of the disease rapid, nothing was observable but increased effusion into the synovial membrane," and adds that "chronic cases are very apt to involve the joints and not unfrequently terminate in recovery."

The eruption was so prominent a feature of the case that it will be recollected it caused it to be mistaken for one of typhoid fever; but the eruption of the character witnessed in this case appears to be by no means an infrequent occurrence in pyæmia, for Bristowe says: "The sudamina are sometimes surrounded by a zone of congestion, which, by a careless observer, may be mistaken for the spots of typhus or enteric fever," and Mr. H. Lee, Dr. Wilks, and, I think, Braidwood, refer to it. It may be well to add to this that there were no symptoms of either typhus or typhoid fever, except excessive prostration, present, and it will generally be admitted, it is thought, that the so-called typhoid state is a necessary accompaniment of the disease under consideration.

The slight severity of the original wound, and the fact that cicatrization had taken place before the occurrence of the first chill, may be regarded by some as sufficient reason for the exclusion of the diagnosis; but there are cases on record that prove that the existence of an open sore is by no means essential. Thus, Wilks, in the admirable paper already alluded to, reports a case in which the disease occurred some time after the wound made by the removal of an epithelial cancer of the lip had cicatrized, and also other cases in which the only apparent exciting causes were either unopened abscesses or internal abscesses, and refers to the fact that gonorrhœa or leucorrhœa may often be the starting point of suppurative fever.

In this connection it may be well to allude to the great resemblance which certain cases of the so-called gonorrhœal rheumatism bear to the disease of which I at first thought my case was an instance—rheumatoid arthritis; and Paget's views on this point, which I have incidentally quoted, confirm an opinion which I have held for some time—that the latter disease and rheumatoid arthritis are essentially the same, and the case which I have reported to-night induces me to believe that there is some connection between these two and pyæmia affecting the joints, even if the relation is as yet ill-defined and vague.

Dr. B. H. COATES related a case of pyæmia that had occurred many years before, the true character of which was then, of course, unknown. A boy, while fishing, was wounded in the vicinity of the knee-joint, and secondary abscesses resulted.

Dr. CASPAR MORRIS.—I was about to refer to the same case. It was, I think, in 1824 that the patient came under our observation at the Pennsylvania Hospital. We were told that the knee-joint wound had been caused by the sharp fin of a catfish. In the state of pathological knowledge which then existed we were disposed to refer the subsequent conditions to some special poison connected with the fin. The man finally died, with swellings of all the joints and symptoms of pulmonary phthisis. We who have been so unfortunate as to meet with many cases of pyæmia in parturient women, have seen occasional instances of recovery, and in such cases I have been disposed to look upon abscesses in the limbs as a favourable symptom.

Dr. F. F. MAURY stated that he had seen two cases of recovery from pyæmia, following surgical operations.

Dr. ASHHURST said that among a large number of cases of pyæmia which had come under his observation, he could then recall only two instances of recovery. One of these cases was like that reported by Dr.

Hutchinson, except that the symptoms were milder; the patient at no time appearing in great danger from the pyæmic condition. The case was supposed by some of those who saw it to be one of acute rheumatism. It occurred after primary excision of the radius for a gunshot fracture, the pyæmic symptoms (among which articular pains, extreme debility, and the peculiar hue of skin were prominent) not being developed until the wound was nearly healed. The other case, by a curious coincidence, also occurred after excision of the radius for gunshot fracture. This was a secondary operation, and the portion of bone removed was about four inches in length. The patient was attacked with rigors on the tenth day, and was extremely ill for about a fortnight during very hot summer weather. Abscesses formed above and below the wound, but did not involve any important structures. This patient eventually recovered with a good limb. His treatment consisted of stimulants, concentrated food, and quinia. The rigors yielded after a week to large doses of this drug, and at the end of another week he became convalescent. Dr. Ashhurst added that his experience confirmed Dr. Hutchinson's remark that only chronic cases get well; the acute cases invariably die. Death sometimes seems to occur most quickly in those cases where the condition is that which has been called "septicæmia," a putrid poison being absorbed into the blood. In these instances there is not time for the development of the characteristic anatomical changes; the morbid condition in the lungs often not advancing beyond the stage of congestion.

Dr. COATES asked if pyæmia was not more frequent and destructive among those whose health was already broken down, and who were crowded together, as in military hospitals.

Dr. ASHHURST replied that such was not his experience; the most rapidly fatal cases which he had seen had been among labouring men with every appearance of robust health. It was, he thought, found by hospital surgeons that pyæmia was most apt to occur after primary operations for injury; the patients in such cases being usually healthy. Patients previously worn down, and who had undergone secondary operations, might die from various depressing conditions, pyæmia being one; but it was at least not more frequent in such cases than in those of primary operation for traumatic causes.

Dr. BACHE said: In the summer of 1852, a young man of healthy appearance, having a gunshot wound of the left hand, was admitted into the Pennsylvania Hospital. The injury was a severe one, the hand being much torn; nevertheless, an attempt was made to save it. Subsequently hemorrhage occurred, to arrest which pressure at the wrist was tried ineffectually. Then the radial artery was tied; after this, as the hand sloughed, the arm was amputated above the wrist. For a time the patient appeared to do well; then the pulse became rapid, pains in the joints with redness set in, and the case terminated fatally in about ten days. Death was attributed to rheumatism caused by damp floors, as the ward had been scrubbed about the time inflammation of the joints was first noticed. From what we now know, I have no doubt that this case was, in fact, one of acute pyæmia.

Chloral in Asthmatic Bronchitis.—Dr. CASPAR MORRIS said: I was recently in attendance upon a lady who suffers from frequently recurring attacks of bronchitis, with asthma. The skin was hot, the frequency and difficulty of respiration very great, the râles loud and musical, and the secretion very profuse, so that the mucus could be poured from the cup in an abundant, ropy stream. My attention had been arrested by the account, recently published, of the hydrate of chloral, and as she had not been relieved by any remedy which I had previously tried, except to a slight degree by chloric ether, it occurred to me that the chloral might be of service. I ordered five grains in one fluidrachm of the syrup of lactucarium of Aubergier, to be repeated in two hours if required. The two doses afforded entire relief; and she has found great comfort since from a single dose taken at bedtime; a good night's rest being secured by it. I mention it as a valuable aid in the treatment of this intractable and distressing disease.

1870, *Feb.* 2. *Report on Meteorology and Epidemics.* W. L. WELLS, M.D., read the following report:—

In 1869 there were reported at the Board of Health in Philadelphia 14,786 deaths; 93 more than in the preceding year, and 853 more than in 1867; less, however, than in any one of the five years preceding 1867.

Taking the population at 800,000, this makes one death in 54.1, or 1.84 per cent. of the total population, a proportion which compares very favourably with other cities whether in this country or in Europe.

The deaths among males amounted to 7644; among females to 7142; 3370 were males over 20 years of age; 4274 were male children; 3313 were females over 20; 3829 were female children—making 6683 adults and 8103 children. 813 were people of colour.

The number above given as the total includes the stillborn—789—and those who died in the country and were buried in the city, 569 in number. On deducting these we have remaining as the deaths in the city, 13,428, one death in 59.6, or 1.67 per cent.

On comparing the different months we find that, as is always the case, July shows most deaths, although as compared with the year before, when July was very hot, there was a diminished mortality; 1900 died in July, 1868, and only 1710 in 1869. On the other hand, August was in the past year nearly as hot as July; the average temperature of the month being equal to the average of July for forty-five years. We find accordingly 1654 deaths in August, 1869, nearly equal to those in July, and exceeding by 84, August of the year before, when 1570 only died.

In September of the past year, the mortality had diminished so much that the whole number of deaths was not equal to those among minors alone the month before, and not equal to the deaths among children under five years of age in July. September was the healthiest month in the whole year. There were only 994 deaths.

March was remarkably wet and cold, and showed an increased mortality; April, on the other hand, was warmer by 2½ degrees Fahr., and dryer than the average, and showed a diminished mortality. In March nearly 300 more, and in April nearly 200 less died than in 1868. In November and December, the mortality was in each case about 200 greater than in the year before.

In 1869 there were 457 stillborn males, and only 332 stillborn females; and this excess in the mortality of male children at birth continues for several years, reducing their proportionate excess in number at birth, until at the period between 10 and 15 the females are more numerous than the males, and so continue, the difference constantly increasing, until between 80 and 90, there appear by the last census reports 1006 females to 518 males; and between 90 and 100, 134 females to 51 males.

On comparing the deaths at different ages with each other, and with the population at the corresponding periods, according to the census reports, we are met by various circumstances which render it difficult to attain to accuracy. Some of these were mentioned in the last report made to the College on this subject. Another and not the least imperfection in the census reports, originates, it would appear, from the desire of many women to be considered young; for to this cause chiefly must be ascribed the fact that there appear on the census reports of 1860 for Philadelphia, more than 200 more females between 15 and 20 than between 10 and 15, and nearly 5000 more between the ages of 20 and 30 than between 10 and 20. Between the ages of 40 and 50 there are still traces of the operation of this cause, but they show themselves in the opposite way. The number of women between those ages is very small, if we are to believe the census, less than the number of men; and reduced to an extent for which the mortality at that period of life hardly begins to account. Beyond the age of 50 the women again are more numerous than the men; although here the action of this cause has probably ceased, as after 50 there is probably no more, or comparatively very little more desire to be thought young.

It is only in comparing the deaths with the *census reports* for the different periods that this particular cause need be taken into consideration; it has of course no influence on the report of deaths at the Board of Health.

In Philadelphia in 1869 the greatest mortality among children under 1 year, was in July, viz., 757, and next in August, 575. May was the healthiest month for them, as only 229 died, less than one-third of the deaths in July. The total deaths under 1 year were 3535, 825 of them from diseases of the stomach and bowels, a smaller number then usual.

Among children between 1 and 2 most died in August, viz., 220, and next in July, 188. After this age the influence of cholera infantum is scarcely felt, as the mortality between 2 and 5 years was greater than either in July or August in four different months, viz., December, November, June, and March. In December, when most died, 61, or not far from half the 150 deaths between those ages, were caused by scarlatina. The deaths from scarlatina in children between 2 and 5 in the whole year were 411, about one-third of 1292, the total mortality between those ages.

Croup was more fatal, in proportion to deaths from other causes, at this than at any other period, causing 122 deaths, retaining the full severity which it possessed between the ages of 1 and 2, when 55 died, while the deaths from almost every other disease which prevailed between 1 and 2, except scarlatina, had diminished in number.

Diphtheria was also most fatal between the ages of 1 and 5, causing 93 deaths, the total number from that cause being 182.

Between the ages of 5 and 10 scarlatina caused 179 of the 562 deaths.

Between 10 and 15, December showed the greatest mortality, June coming next. Between these ages the diseases which previously have decimated children again and again, have lost their power, while the diseases which subsequently prove so fatal are seen just beginning. Enteric fever makes its appearance, causing 32 deaths, more than from any other one cause, and tuberculosis having ceased to attack so frequently the abdominal viscera, first shows a serious disposition to transfer its attention to the lungs; 26 died of phthisis. Next to these two diseases come disease of the heart and scarlatina, which each caused 22 deaths. The total deaths between 10 and 15 were only 260, showing that this period is the healthiest of a man's whole existence.

Between 15 and 20 the total deaths were 332, 43 of them in December, the most unhealthy month for that age last year. Phthisis caused most deaths, 151, only 15 less than half of the whole number; next came enteric fever, 40; next disease of the heart, 34; and then pneumonia, 21.

Between 20 and 30 years the total deaths were 1408, 628 of them (again not far from half of the whole number) caused by phthisis, which at this period shows its full power. Enteric fever comes next, causing 119 deaths, this disease also showing its full power at this period. Pneumonia and disease of the heart follow, causing 52 and 51 deaths respectively.

Between 30 and 40 the deaths were 1251; in numbers a slight decrease, although relatively to the number alive at that period a slight increase over the preceding ten years. Phthisis pulmonalis caused 475; then came disease of the heart, 62; pneumonia, 57; and enteric fever, 44. This last disease after this diminishes in force while the two preceding go on increasing.

Between 40 and 50 the total mortality was 1020; from phthisis 289, not much more than a quarter of the whole; disease of the heart, 59, and pneumonia, 57; cancer comes next, 47. This last disease here first comes into prominence.

Between 50 and 60 the total mortality was 882; from phthisis, 163, less than one-fifth of the whole. Next come disease of the heart, 74; pneumonia, 61, and cancer, 59; precisely the same order as in the ten years preceding.

Between 60 and 70 the total mortality was 896; more actually, and of course far more proportionally, than in the former period. Phthisis here for the last time shows its pre-eminence, causing 103 deaths, less than one-eighth of the total mortality; it has thus reigned supreme from 15 to 70. Disease of the heart caused 73; pneumonia, 71, and cancer, 56 deaths, again the same order as before. Next to these come paralysis, causing 48, and apoplexy causing 47 deaths; the first time that these become very important. 85 deaths in this period are ascribed to debility—a rather uncertain term—and 8 to old age.

Between 70 and 80, 199 deaths are ascribed to old age, and only 4 to debility. These two names are evidently used to denote the same pathological condition, both indicating in most instances the fact that it has been not so much the severity of the disease as the weakness of the constitution—its being worn out, and unable to withstand even a slight attack—which has produced a fatal result. Still, of course, it is an imperfection to use such terms, and they serve only to cloak the ignorance of the writer of the certificate.

The total deaths between 70 and 80 were 742; a little more than half those between 20 and 30; but when considered in reference to the proportion between those alive at 20, and those alive at 70, three times as many. Paralysis caused 55, and apoplexy 32 deaths, together, 87. Disease of the heart caused 62, and pneumonia 49.

The total deaths between 80 and 90 were 402; 211 from old age; 40

from paralysis and apoplexy; 15 from disease of the heart, and 15 from pneumonia.

Between 90 and 100 old age caused 55 of the 76 deaths, and between 100 and 110 all the deaths, 6 in number, are ascribed to the same cause.

The only epidemic which attained unusual proportions in 1869 was one of scarlatina. This is a disease which appears to have been gradually making progress in this city; as, from 1807 to 1818 there were in all only 13 deaths; from 1818 to 1830, 149; since then, a varying but persistant increase has taken place.

The greatest mortality from this cause was in the month of December, when there were 111 deaths. The disease had previously attained considerable prevalence in June, when there were 84 deaths, but it then declined, and in September there were only 40 deaths; less than in any other month in the year; after which it again rapidly and alarmingly increased in severity. The total mortality from scarlatina in 1869 was 799.

Enteric fever caused in 1869, 383 deaths, to 395 the year before. This disease has been gradually declining ever since 1865, when it caused 773, or nearly three times as many deaths as in the past year.

Typhus and the other low forms of fever, including cerebro-spinal meningitis and malignant fever, caused 88 deaths, hardly a tenth part of those they caused in 1864, since which time they have been gradually declining.

Rubeola caused 85 deaths only, also a diminution from the few preceding years. This disease caused 221 deaths in 1866.

There were in 1869, 50 deaths from the various malarial fevers; here again we have a reduction as compared with the six preceding years. In 1864 there were 77 deaths reported as caused by congestive fever alone.

The deaths from variola in 1869 only amounted in the whole year to 6, 2 males and 4 females—the males being both between 30 and 40 years of age, and the females, all four, under 2 years. Even this small number, however, was an increase over the preceding year, when there was only a single death from this cause.

There were in 1869 no deaths from yellow fever, the only case reported to the Board of Health having died elsewhere and the body having been brought here for interment.

Nine cases of death from cholera were reported in 1869.

The total mortality from phthisis in 1869 was 1975, 20 less than in 1868; 982 were males and 993 females. In March most died from this cause, viz., 215; next, in the months immediately preceding and succeeding, viz., 187 in April and 185 in February. The least mortality was in September, viz., 123, and next in October, viz., 132. There is, however, no rule in reference to this, as, for example, in 1866, October, instead of being the month with nearly the least mortality, was that in which there was next to the greatest, January having the greatest; and on going further back we find a year (1858) in which September (which eleven years later had the *least*) had the *greatest* mortality.

From diseases of the respiratory system (not including phthisis) there were 1296 deaths.

From diseases of the circulatory system, 587; a slight increase over the preceding year.

From diseases of the nervous system, 1985; a diminution from the preceding year, when 2124 died from this cause.

From diseases of the digestive system there were 2064 deaths.

The meteorological observations on which the present report is founded were taken by Dr. Conrad, at the Pennsylvania Hospital, and are entirely reliable.

The mean temperature of 1869 was 54.75 Fahr., 1.25 degrees above the mean of 45 years. The only months which were colder than usual were one of the spring (March), and two of the autumn (October and November). July varied less than any other from the average, only ¼ degree, while August was 2.70 above the average, making it nearly as warm as July. January varied most from the general average of the month, being 5.32 degrees above it; the warmest January except two in 45 years. February was 4.58 degrees above the average. November, on the other hand, was 3.25 degrees below the average, being the coldest November since 1848, and only 4 degrees warmer than December. The early part of March was very cold, the average until the 24th being below that of February.

The highest point which the thermometer reached in the year was 97.5, on July 16th. There were, accordingly, not many cases of sunstroke—only 12 in the year.

49.86 inches of rain fell in 1869, 4 inches more than the average—April, July, August, and September being the only months in which it was dryer than usual. August and the few weeks immediately preceding and succeeding were especially dry, causing great injury to the autumn crops.

On October 2 the rain fell in torrents all the afternoon and evening, and this was the case over the whole valley of the Schuylkill, so that the next day there was the greatest freshet ever known here, the water being 11½ feet deep on the breast of the dam at Fairmount. The freshet extended from Maine to Virginia.

On the 1st of January, 1869, there was a storm of rain and sleet, and the ice formed so thickly on the trees that many branches were broken by the weight, and the roads in some places were obstructed.

On the 15th of April there was an aurora borealis, which has rarely, if ever, been paralleled here. Telegraphic despatches could be sent by the aid of it alone.

June 27th there was a tornado in the lower part of the city, which did a great deal of damage, even blowing down some houses.

On the 22d of October there was an earthquake in New Brunswick and Nova Scotia, severe enough to overthrow chimneys and do slight damage in other ways, and extending, in a less degree, to the neighbouring parts of the United States. Although it was not felt here, it may be mentioned as the one which has approached us more nearly than any other.

Some tables prepared to accompany this report are unavoidably omitted.